



EA Engineering, Science,  
and Technology, Inc.

2s August, 2000

TO: Charles Basham, USACE-Baltimore District (4 copies)  
Ray Pilon, USACE-Buffalo District (13 copies)  
Gordy Porter, EA Engineering Project Manager  
Jeff Smith, EA Engineering, Site Manager

FROM: Sandra Staigerwald, EA Engineering, Task Manager

RE: Expansion of LOOW Phase II RI (Response to Phase II RI Letter 04)

Preliminary results from the field screening analysis program described in **Final Addendum** to the Work Plan for Phase I RI for the LOOW, Niagara County, **New York, for Phase II Remedial Investigation** (dated June 2000) indicate the presence of chemical constituents at concentrations exceeding the NYSDEC TAGM values, or exhibiting an increasing trend in concentration at the following areas of investigation:

Area 2/8/20 Grid D300  
Area 6 Grid SP  
Area 6 Grid D75  
Area 6 Grid F200

Due to the reported constituents, it was recommended that the sampling at these grids be expanded. As per the letter dated 17 August 2000 ("Phase II RI Letter 04"), approval was issued by Mr. Charles Basham, Design Team Leader, USACE-Baltimore, to add additional points to the referenced grids.

Attached is the approval letter from the USACE dated 17 August 2000 (see Attachment 1), as well as inserts for each section of the **Final Addendum** to the Site Specific Sampling and Analysis Plan for the Phase I RI at the Former LOOW Niagara County, New York **for Phase II Remedial Investigation**. Each of the inserts describe the approved additions to the sampling and analysis plan for each area, and should be inserted into the readers copy of the Final Plan.

Attachments:

Attachment 1-Approval letter dated 17 August, 2000 from USACE

Attachment 2-Additions to the Sampling and Analysis Plan(SAP) B-4, Areas 2 and 20

Attachment 3-Additions to the SAP B-9. Area 6

ATTACHMENT 1



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
P.O. Box 1715  
Baltimore, MD 21203-1715

17 August 2000

Civil HTRW Section  
Engineering Division

Mr. H. Gordon Porter EA Engineering, Science, and  
Technology, Inc. 15 Loveton Circle Sparks,  
Maryland 21152 SUBJECT: Phase II RI Letter 04

Dear Mr. Porter:

Reference is made to Delivery Order 0115, Lake Ontario Ordnance Works (LOOW) Site Wide Remedial Investigation Phase 2 under your contract DACA31-94-D-0015.

Based on results of preliminary field investigations, the Government has identified the need for additional soil borings at LOOW. Specifically, the following amendments to the final work plans are approved:

a) Area 2/8/20 D300 grid (Figure B-4-I): Add two locations, A5 and Z4, to East and South of A4, respectively to delineate increase in PAH concentrations (3,501 ug/kg) observed in A4. Collect shallow (0.5 ft bgs) sample only, analyze for PAH only. Add two locations, Z1 and Y2, to the west and south of Z2, respectively, to delineate the increase in PAH observed in Z2. Collect shallow (0.5 ft bgs) and mid (3 ft bgs) depth soil sample and analyze for PAH only.

b) Area 6SP grid (Figure B-9-I): Add two locations, A99 and Z1, to the west and south of A1, respectively, to delineate increase in PAH concentration observed in A1. Collect 1 surface (0.5 ft bgs) and one subsurface sample from each location and field screen for PAH only.

c) Area 6 grid (the 100 ft spacing grid) (Figure B-9-I): Add 9 points (A1, A2, A3, B1, B2, B3, C1, C2, C3) around location D75 to delineate elevated PAH concentration in the subsurface soil. Collect 2 samples from each location, below the disturbed soil (3-4 ft) and subsurface, analyze for PAH only. Similarly, add 9 points around location F200 to delineate the elevated PAH concentration reported in the subsurface soil. Collect 2 samples from each location; below the disturbed soil (3-4 ft) and subsurface, analyze for PAH only.

You are requested to amend the final work plans to reflect these adjustments. The costs associated for this work shall be accounted for in accordance with the Scope of Work, paragraph 5.d. "Variations in Estimated Quantities (Field Days, Monitoring Wells, and Transportation)".

I consider that all of the above work is in accordance with the Scope of Work  
Please contact me immediately should clarification on the above is required.

Sincerely,

C

Charles E. Basham, P.E  
Design Team Leader

Copy Furnished: US Army Corps of Engineers-  
Buffalo District ATTN: CELRB-PM (Mr. Ray  
Pilon) 1776 Niagara Street Buffalo, NY 14203

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Attachment 2 (reference letter dated 28 August 2000 and USACE letter dated 17 August 2000)

## 17 AUGUST 2000 ADDITIONS TO THE SAMPLING AND ANALYSIS PLAN (SAP) FOR AREAS 2 AND 20

INSERTION LOCATION: Insert page between Table B-4-1 and B-4-2

### CHANGES TO ORIGINAL SAP:

#### Phase II Investigation at Area 2/8/20 Grid D300

Due to elevated PAH concentrations reported in surface soil samples collected from original grid location A4 and in surface and semi-subsurface soil samples collected from original grid location Z2, two additional locations will be added surrounding both grid locations to assess the horizontal extent of the reported constituents. The locations will be designated and placed as follows (see figure B-4-1 for location of D300 grid within Area 2/8/20):

New location A5 shall be placed 25 ft east of D300A4

New location Z4 shall be placed 2.5 ft south of D300A4

New location Y2 shall be placed 25 ft south of D300Z2

New location Z1 shall be placed 25 ft west of D300Z2

Varying slightly from the original strategy outlined for the D300 grid (see Table B-4-2), a surface soil sample only will be collected from the two new locations A5 and Z4 and will be screened for only PAHs. In accordance with the original sampling strategy for the D300 grid (see Table B-4-2), a surface and a semi-subsurface soil sample will be collected from the two new locations Z1 and Y2 and will be screened for only PAHs. The sample intervals shall be 0.0 to 0.5 ft bgs for the surface sample and 2.5 to 3.0 ft bgs for the semi-subsurface sample, or at the discretion of the field geologist based on possible observations of elevated organic vapor concentrations or soil staining.

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17 AUGUST 2000 ADDITIONS TO THE SAP FOR AREA 6

INSERTION LOCATION: Insert page before Table B-9- 1

CHANGES TO ORIGINAL SAP:

Phase II Investigation at Area 6 Grid SP

Due to elevated PAH concentration reported in the semi-subsurface soil samples collected from original grid location A1, two additional locations will be added to assess the horizontal extent of the reported constituents. The locations will be designated and placed as follows (see figure B-9-1 for location of SP grid within Area 6):

New location A99 shall be placed 25 ft west of SPA1

New location Z1 shall be placed 25 ft south of SPA1

Varying slightly from the original sampling strategy for the SP grid (see Table B-9-2), one semi-subsurface soil sample only will be collected from each of the new locations and will be screened for PAHs. The sample interval shall be 1 to 2 ft bgs, or at the discretion of the field geologist based on possible observations of elevated organic vapor concentrations or soil staining.

Phase II Investigation at Area 6 Grid D75

Due to elevated PAH concentration reported in the soil samples collected at D75, eight new locations will be added surrounding D75 to assess the horizontal extent of the reported constituents. This rationale mirrors the rationale used in placing the Phase II sampling locations based on the Phase I RI results. The locations will be designated and placed as follows (see figure B-9-1 for location of grid point D75 within Area 6):

New location A1 shall be placed approximately 35 ft southwest of D75

New location A2 shall be placed 25 ft south of D75

New location A3 shall be placed approximately 35 ft southeast of D75

New location B 1 shall be placed 25 ft west of D75

New location B3 shall be placed 25 ft east of D75

New location C1 shall be placed approximately 35 ft northwest of D75

New location C2 shall be placed 25 ft north of D75

New location C3 shall be placed approximately 35 ft northeast of D75

In accordance with the original sampling strategy for the D75 grid (see Table B-9-2), one semi-subsurface and one subsurface sample will be collected from each of the new locations and will be screened only for PAHs. The semi-subsurface interval shall be 2 to 4 ft bgs and the subsurface interval shall be at 12 ft bgs, or at the discretion of the field geologist based on observations of elevated organic vapor concentrations or soil staining.

The site manager and field chemist will review field screening results for the semi-subsurface and subsurface soil samples collected from the sample locations at this grid area. They will then identify locations from which COPC concentrations were reported above 1/10<sup>th</sup> NY State comparison criteria and those from which COPC concentrations were reported below 1/10<sup>th</sup> NY State comparison criteria (i.e. “clean” sample). Ten percent of the sample locations that had the highest reported COPC concentrations above 1/10<sup>th</sup> NY State comparison criteria and ten percent of the “clean” sample locations will be chosen for re-sampling for confirmatory laboratory analysis. “Clean” samples are being submitted for laboratory analysis in order to verify the defined boundary of the area of impact based on field screening results. If additional samples were not added to further delineate reported potential COPC then ten percent of sample locations which had the highest reported COPC concentrations and ten percent of the “clean” sample locations would be equivalent to two sample locations at this grid area.

From each of the sample locations identified by the site manager and field chemist for re-sampling for confirmatory analysis, two soil samples (surface and subsurface soil) will be re-collected, re-screened, and submitted for laboratory analysis of full TCL/TAL analytes, boron, lithium, and explosives as indicated in Table B-9-2.

#### Phase II Investigation at Area 6 Grid F200

Due to elevated PAH concentration reported in soil samples collected from original grid location F200, eight new locations will be added surrounding F200 to assess the horizontal extent of the reported constituents. The locations will be designated and placed as follows (see figure B-9-1 for location of grid point F200 within Area 6):

New location A1 shall be placed approximately 35 ft southwest of F300  
New location A2 shall be placed 25 ft south of F300  
New location A3 shall be placed approximately 35 ft southeast of F300  
New location B1 shall be placed 25 ft west of F300  
New location B3 shall be placed 25 ft east of F300  
New location C1 shall be placed approximately 3.5 ft northwest of F300  
New location C2 shall be placed 25 ft north of F300  
New location C3 shall be placed approximately 35 ft northeast of F300

In accordance with the original sampling strategy for F200 (see Table B-9-2), one semi-subsurface and one subsurface sample will be collected from each of the new locations and will be screened only for PAHs. The semi-subsurface interval shall be 2 to 4 ft bgs and the subsurface interval shall be at 9 to 10 ft bgs, or at the discretion of the field geologist based on possible observations of elevated organic vapor concentrations or soil staining.

The site manager and field chemist will review field screening results for the semi-subsurface and subsurface soil samples collected from the sample locations at this grid area. They will then identify locations from which COPC concentrations were reported above 1/10<sup>th</sup> NY State comparison criteria and those from which COPC concentrations were reported below 1/10<sup>th</sup> NY State comparison criteria (i.e. “clean” sample). Ten percent of the sample locations that had the highest reported COPC concentrations above 1/10<sup>th</sup> NY State comparison criteria and ten percent



of the “clean” sample locations will be chosen for re-sampling for confirmatory laboratory analysis. “Clean” samples are being submitted for laboratory analysis in order to verify the defined boundary of the area of impact based on field screening results. If additional samples were not added to further delineate reported potential COPC then ten percent of sample locations which had the highest reported COPC concentrations and ten percent of the “clean” sample locations would be equivalent to two sample locations at this grid area.

From each of the sample locations identified by the site manager and field chemist for re-sampling for confirmatory analysis, two soil samples (surface and subsurface soil) will be re-collected, re-screened, and submitted for laboratory analysis of full TCL/TAL analytes, boron, lithium, and explosives as indicated in Table B-9-2.

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